RELATIONSHIPS OF PHLOX CAESPITOSA, PULVINATA, AND DOUGLASII (POLEMONIACEAE)

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In the course of his journey eastward in the spring of 1833, Nathaniel Wyeth collected a *Phlox* which was assigned the epithet *caespitosa* by Thomas Nuttall the following year. When the writer was compiling his monograph on the genus, published in 1955, no data were at hand to enable more than a guess as to its type locality to be made. Shortly afterward, however, there appeared McKelvey's monumental Botanical Exploration of the Trans-Mississippi West, which included in Chapter 25 extracts from Wyeth's journal of that trip.

The taxon concerned was recorded to have been collected along "Flathead River, high side of a dry hill." The writer presumed this to have been near the mouth of the river presently so named, but it is now manifest that Wyeth applied this name to what is designated on modern maps as Clarks Fork River. Where, then, along this stream did the plant grow? The label accompanying the type specimen bears the date April 22, 1833; but the journal records that on this day the party was leaving Flathead House to continue their eastward journey. At such a time an expedition-leader would surely not have had leisure to climb the high side of a hill to obtain botanical specimens. On April 30, however, he recorded that he "went out to collect some flowers for friend Nuttall," so this was most likely the real date of discovery of the taxon.

The location of Flathead House, from which the party started a week before, has seemingly never been establishd; McKelvey gives the opinion of one historian on page 513 and of another on page 514, and the two differ considerably. One can infer, however, that when Wyeth found his opportunity to botanize for friend Nuttall he was in the general vicinity of the present Superior, Montana, at an altitude of around 3000 feet. It may be noted that in herbaria there is represented a modern collection of the same taxon from 4 miles east of Thompson Falls, which is farther down Clarks Fork River at about 2500 feet.

Wyeth collected ample material, and beside the type clump in Nuttall's herbarium in the British Museum, there are clastotypes in the Gray Herbarium. The features of the taxon can therefore be checked in this country by anyone interested. It grows 6 to 10 cm. [misprinted mm. in the Monograph] high, with spaced nodes; the leaves are linear-subulate, thickish and not at all needle-like, with conspicuous coarse cilia; the inflorescence-herbage is glandular-pubescent; and the pedicels are up to 6 and styles to 8 mm. long. Field and herbarium study show material of this sort to occur at moderate altitudes in Idaho-Montana and increas-

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ingly higher down to Utah-Colorado. At really high altitudes, however, it is replaced by relatives.

The commonest of these relatives, and the only one meriting discussion here, is taxon *pulvinata* (Wherry, 1941). This differs from taxon *caespitosa* in the clumps being under 5 cm. high with close-set nodes, the pedicels only up to 3 and the styles to 5 mm. long. Except in sizes of parts the two are identical in all significant features, representing little more than ecotypes of respectively moderate and high altitudes. Because of their distinctive geography, the writer classed taxon *pulvinata* as a subspecies. In the recent work, Vascular Plants of the Pacific Northwest, however, this was raised to species status, without any new data being given to justify such an assignment.

Another proposal made in the work just cited calls for fuller discussion; this concerns the interpretation of *Phlox douglasii* Hooker, 1838. Although Hooker showed some confusion in his writings on cushion Phloxes, he had no difficulty in recognizing that one of these collected by Douglas in the mountains of Washington or Oregon was wholly distinct from Wyeth's plant, and named it after its collector. Bentham, the first monographer of the genus, agreed. Asa Gray, while finding Phloxes of this type "almost inextricable," had no hesitation as to keeping these two separate.

After studying in detail the scores of specimens which have accumulated in herbaria, the writer found the two to be so distinct in morphology that they could serve as the basis of independent subsections, *Caespitosae* and *Douglasianae*. In the key these were separated by having, as had been noted by the earlier workers, respectively "Leaf-cilia coarse, conspicuous," *vs.* "Leaf-cilia fine or obsolete." In the text it was added that in the former subsection the leaves are relatively broad and flat, in the latter narrow and acicular. In the genus *Phlox* such leaf differences, correlating as they do with less readily observable inflorescence characters, are very useful in tracing the relationships between superficially similar taxa and grouping them in a meaningful way. There is every indication that "broad-leaved" and "needle-leaved" cushion Phloxes belong to independent phylogenetic groups.

In the Vascular Plants of the Pacific Northwest, page 129, *Phlox douglasii* is placed, along with a couple of only remotely related taxa, in a table of subjective ("taxonomic") synonymy under *P. caespitosa*. This seems like a rather shabby treatment of a taxon, the epithet of which has in the past been so popular that it has been applied in one way or another to a considerable number of cushion Phloxes, becoming indeed a sort of catch-all for material requiring closer study than most workers were willing to give. Had new research demonstrated the validity of such an assignment, the principle of priority would of course come into play.

The only basis for this proposal, however, is stated on page 135: "The type of *P. caespitosa* . . . proves to be a compact plant of the taxon usually known as *P. douglasii.*" Actually the genus *Phlox* is far too complex to justify basing fundamental conclusions as to its systematics on mere superficial observation, without the presentation of pertinent qualitative and quantitative data. Until the relations between these two taxa are fully studied by workers of greater eminence or diligence than those listed above, a change from long-established usage is deemed inacceptable. All evidence at present available indicates *Phlox douglasii* and *P. caespitosa* to be just as distinct at species level as any pair of unrelated taxa which through parallel evolution have attained similar habit.

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